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Terms	Documents
(((348/14.02)!..CCLS.))	45

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<u>L79</u>	(((709/318)!..CCLS.))	119	<u>L79</u>
<u>L78</u>	(((370/371)!..CCLS.))	71	<u>L78</u>
<u>L77</u>	(((370/300)!..CCLS.))	59	<u>L77</u>
<u>L76</u>	(((370/299)!..CCLS.))	76	<u>L76</u>
<u>L75</u>	(((370/282)!..CCLS.))	263	<u>L75</u>
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<u>L73</u>	(((370/230)!..CCLS.))	364	<u>L73</u>
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<u>L57</u>	((((709/101)!..CCLS.))	166	<u>L57</u>
<u>L56</u>	((((709/\$)!..CCLS.))	14445	<u>L56</u>
<u>L55</u>	((((358/442)!..CCLS.))	527	<u>L55</u>
<u>L54</u>	((((358/441)!..CCLS.))	56	<u>L54</u>
<u>L53</u>	((((358/400)!..CCLS.))	665	<u>L53</u>
<u>L52</u>	((((358/525)!..CCLS.))	119	<u>L52</u>
<u>L51</u>	((((358/\$)!..CCLS.))	33990	<u>L51</u>
<u>L50</u>	((((340/\$)!..CCLS.))	95394	<u>L50</u>
<u>L49</u>	((((340/522)!..CCLS.))	436	<u>L49</u>
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<u>L39</u>	((((707/206)!..CCLS.))	251	<u>L39</u>
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<u>L37</u>	((((707/104)!..CCLS.))	0	<u>L37</u>
<u>L36</u>	((((707/100)!..CCLS.))	942	<u>L36</u>
<u>L35</u>	((((707/10)!..CCLS.))	1820	<u>L35</u>

<u>L34</u>	((707/1)!.CCLS.)	1301	<u>L34</u>
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<u>L32</u>	L30 and (predetermined process)	4	<u>L32</u>
<u>L31</u>	L30 and trigger	1	<u>L31</u>
<u>L30</u>	L29 and network\$3	4	<u>L30</u>
<u>L29</u>	l25 or l26	4	<u>L29</u>
<u>L28</u>	L26 and (data same transmi\$5)	4	<u>L28</u>
<u>L27</u>	L26 and (information same transmi\$5)	4	<u>L27</u>
<u>L26</u>	L25 and (event same detect\$3)	4	<u>L26</u>
<u>L25</u>	L24 and event and storage and transmission	4	<u>L25</u>
<u>L24</u>	L23 and (event near detect\$3)	4	<u>L24</u>
<u>L23</u>	L22 and (transmission media)	6	<u>L23</u>
<u>L22</u>	L21 and (event same detect\$3)	6	<u>L22</u>
<u>L21</u>	l17 and ("transmission media" or "transmission means")	43	<u>L21</u>
<u>L20</u>	L19 and event same detect\$3	6	<u>L20</u>
<u>L19</u>	L18 and event and storage	11	<u>L19</u>
<u>L18</u>	L17 and "transmission media"	43	<u>L18</u>
<u>L17</u>	"information processing device"	4500	<u>L17</u>
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<u>L57</u>	(((709/101)!.CCLS.))	166	<u>L57</u>
<u>L56</u>	(((709/\$)!.CCLS.))	14445	<u>L56</u>
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<u>L50</u>	(((340/\$)!.CCLS.))	95394	<u>L50</u>
<u>L49</u>	(((340/522)!.CCLS.))	436	<u>L49</u>
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<u>L43</u>	(((375/\$)!.CCLS.))	39241	<u>L43</u>
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<u>L41</u>	(((348/\$)!.CCLS.))	41566	<u>L41</u>
<u>L40</u>	(((707/\$)!.CCLS.))	13019	<u>L40</u>
<u>L39</u>	(((707/206)!.CCLS.))	251	<u>L39</u>
<u>L38</u>	(((707/200)!.CCLS.))	789	<u>L38</u>
<u>L37</u>	(((707/104)!.CCLS.))	0	<u>L37</u>
<u>L36</u>	(((707/100)!.CCLS.))	942	<u>L36</u>
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<u>L34</u>	((707/1)!.CCLS.)	1301	<u>L34</u>
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<u>L32</u>	L30 and (predetermined process)	4	<u>L32</u>
<u>L31</u>	L30 and trigger	1	<u>L31</u>
<u>L30</u>	L29 and network\$3	4	<u>L30</u>
<u>L29</u>	l25 or l26	4	<u>L29</u>
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<u>L7</u>	L6 and (detect\$3 same event)	1	<u>L7</u>
<u>L6</u>	L5 and event	1	<u>L6</u>
<u>L5</u>	L4 and identif\$4	1	<u>L5</u>
<u>L4</u>	l3 and (transmission media)	1	<u>L4</u>
<u>L3</u>	l1 and (information processing device)	2	<u>L3</u>
<u>L2</u>	6014557.uref.	0	<u>L2</u>
<u>L1</u>	6014557.pn.	2	<u>L1</u>

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File: USPT

Apr 28, 1998

US-PAT-NO: 5745532

DOCUMENT-IDENTIFIER: US 5745532 A

TITLE: System for wireless transmission and receiving of information and method of operation thereof

DATE-ISSUED: April 28, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Campana, Jr.; Thomas J.	Chicago	IL		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
NTP Incorporated	Annandale	VA			02

APPL-NO: 8/ 458651 [PALM]

DATE FILED: June 2, 1995

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This application is a Continuation-In-Part of U.S. patent application Ser. No. 08/391,555, filed Feb. 21, 1995, entitled "System for Wireless Transmission and Receiving of Information and Method of Operation Thereof"; U.S. patent application Ser. No. 08/386,060, filed Feb. 7, 1995, entitled "System for Wireless Serial Transmission of Encoded Information"; U.S. patent application Ser. No. 08/385,312, filed Feb. 7, 1995, entitled "Receiving Circuitry for Receiving Serially Transmitted Encoded Information"; and U.S. patent application Ser. No. 08/385,143, filed Feb. 7, 1995, entitled "Transmitting Circuitry for Serial Transmission of Encoded Information" which applications are Continuations-in-Part of U.S. application Ser. No. 08/112,256, now U.S. Pat. No. 5,446,759, filed Aug. 26, 1993, entitled "Information Transmission System and Method of Operation"; which is a Continuation-In-Part of U.S. application Ser. No. 07/850,275, filed Mar. 12, 1992, entitled "Low Power Information Transmission System Having High Information Transmission and Low Error Rates and Method of Operation" (now abandoned); Ser. No. 07/850,276, filed Mar. 12, 1992, entitled "High Speed, Low Power and Low Error Information Receiver and Method of Operation" (now abandoned); and Ser. No. 07/850,487, filed Mar. 12, 1992, entitled "Low Power Information Transmission and Receiving System Having High Information and Low Error Rates and Method of Operation" (now abandoned), which applications are incorporated herein by reference in their entirety. Reference is also made to U.S. patent application Ser. No. 08/460,778, filed on even date herewith, entitled "System for Wireless Transmission and Receiving of Information and Method of Operation Thereof" which application is incorporated herein by reference in its entirety.

INT-CL: [6] H04 B 7/10, H04 L 1/02

US-CL-ISSUED: 375/347; 455/52.1

US-CL-CURRENT: 375/347; 455/504

FIELD-OF-SEARCH: 375/347, 455/52.1, 455/52.2, 455/52.3, 455/65, 455/101, 455/278.1, 455/296, 455/132, 455/272, 455/273

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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<input type="checkbox"/>	<u>3195048</u>	July 1965	Adams et al.	455/101
<input type="checkbox"/>	<u>3526837</u>	September 1970	Zegers et al.	325/41
<input type="checkbox"/>	<u>3761891</u>	September 1973	Markwitz	340/146.1
<input type="checkbox"/>	<u>3786415</u>	January 1974	Phillips et al.	340/146.1
<input type="checkbox"/>	<u>3842352</u>	October 1974	Cote	455/52.1
<input type="checkbox"/>	<u>3860907</u>	January 1975	Marshall	340/146.1
<input type="checkbox"/>	<u>3873920</u>	March 1975	Apple, Jr. et al.	325/41
<input type="checkbox"/>	<u>4271525</u>	June 1981	Watanabe	375/14
<input type="checkbox"/>	<u>4272434</u>	June 1981	Le Polozec et al.	375/100
<input type="checkbox"/>	<u>4286334</u>	August 1981	Gammel et al.	375/40
<input type="checkbox"/>	<u>4298984</u>	November 1981	Baker	375/40
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<input type="checkbox"/>	<u>4517562</u>	May 1985	Martinez	370/11
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<input type="checkbox"/>	<u>4680766</u>	July 1987	Wilkinson	371/47
<input type="checkbox"/>	<u>4686690</u>	August 1987	Sato	375/114
<input type="checkbox"/>	<u>4694473</u>	September 1987	Etoh	375/116
<input type="checkbox"/>	<u>4715048</u>	December 1987	Masamura	375/100
<input type="checkbox"/>	<u>4849990</u>	July 1989	Ikegami et al.	375/40
<input type="checkbox"/>	<u>4858235</u>	August 1989	Matsuda	371/38
<input type="checkbox"/>	<u>4885749</u>	December 1989	Golden	371/32
<input type="checkbox"/>	<u>4967413</u>	October 1990	Otani	371/37.7
<input type="checkbox"/>	<u>5031193</u>	July 1991	Atkinson et al.	375/100
<input type="checkbox"/>	<u>5159331</u>	October 1992	Park et al.	340/825.4
<input type="checkbox"/>	<u>5228026</u>	July 1993	Albrow et al.	370/29
<input type="checkbox"/>	<u>5446759</u>	August 1995	Campana, Jr.	375/267

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Western Electric Technical Digest No. 8 of Oct. 1967 entitled "Time Diversity Transmission System" W.R.G. Duane.
 Spragins et al, "Telecommunications Protocols and Design", Feb. 1991, pp. 263-279.
 Modern Dictionary of Electronics, Sixth Edition 1984, p. 281.
 Western Electric Technical Digest No. 8, of Oct. 1967 entitled "Time Diversity Transmission System" by W.R.G. Duane.

ART-UNIT: 264

PRIMARY-EXAMINER: Chin; Stephen

ASSISTANT-EXAMINER: Ghayour; Mohammad

ATTY-AGENT-FIRM: Antonelli, Terry, Stout, & Kraus, LLP

ABSTRACT:

A system and method is disclosed for wireless transmission of information which is subject to fading by using a RF carrier modulated with a subcarrier modulated with the information. The system has a bus interface which communicates with a digital signal processor which controls the transmitting and receiving circuitry functions. The bus interface is for connection to a computer bus which is connected to a computer which originates information to be transmitted by transmitting circuitry and which receives information from receiving circuitry. The digital signal processor provides first and second encoded information streams each comprising the information to be transmitted with the second stream being delayed by a time delay interval with respect to the first stream which is equal to or greater than the fading interval. The first and second encoded information streams modulate cycles of the subcarrier to produce first and second parallel information streams which are time offset by the time delay interval. The receiving circuitry has a detector for detecting transmitted first and second parallel information streams with the second parallel information stream being delayed from the first parallel information stream by the time delay interval. The digital signal processor determines if faded information is present in the frames of the detected first and second parallel information streams by processing the error correction code therein to determine if a number of bit errors are present which exceed the bit error correction capacity of the error correction code. The digital signal processor places an error marker within the detected first and second parallel information streams to mark each faded information unit and controls replacement of each error marker within at least one of the first and second parallel information streams with replacement data bits within a frame in one of the first and second parallel information streams which were time offset at transmission by the time delay interval to produce error free transmitted information.

62 Claims, 60 Drawing figures